

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE:** MLP00-0307-00(008), Chatham County  
P.I. No.: 562165  
SR 307 / Dean Forest Road

**OFFICE:** Engineering Services

**DATE:** April 28, 2009

**FROM:** Ronald E. Wishon, State Project Review Engineer

**TO:** James B. Buchan, P.E., State Urban Design Engineer  
Attention: Albert Welch

**SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES**

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT No.	Description	Savings PW & LCC	Implement	Comments
<b>ROADWAY</b>				
C-3	Use only Asphaltic Concrete pavement instead of the combination of ACP, PPC Concrete Pavement and HES Concrete Pavement.	\$298,310	No	The twenty four hour truck percentage for this project is 62%. This high truck percentage causes a higher predicted design period load, which requires a stronger pavement design to support it. The ACP pavement design proposed by the VE team meets design criteria, however it will require more maintenance over time (see attached 30-year Life Cycle Cost Analysis). PCC's life cycle cost is \$34,000 while ACP's is \$624,000. This difference results in a total savings of \$1,053,000 for construction and maintenance by using PCC over the 30-year period.

ROADWAY Continued				
G-1	Do not construct sidewalk along the corridor, but only at the intersections with Commerce/Export Blvd. and SR 21, to provide for ramps. Sidewalk at these intersections is recommended to be 4" thick.	\$458,986	Yes	No sidewalks currently exist along any section of SR 307. This project is in an industrial / commercial area with very little pedestrian traffic as noted by the lack of pathways along the shoulder. The closest residential area is one half mile south of the SR 307/SR 21 intersection at Doyle Street.
K-1	Reduce the lane widths from 12-feet to 11-feet. Maintain the 14-foot median width in lieu of the proposed 20-foot from STA. 18+60 to 72+64.	\$859,858	No	The project's base year (2010) ADT is 18,900 and design year (2030) ADT is 27,600, thus the traffic volumes warrant the raised median. Although the corridor does not currently have a raised median, the proposed typical section matches two nearby project along SR 307. SR 307 over the new Port Authority Rail Line, located 0.34 mile to the east, proposes a 20-foot raised median and is currently in final design. Jimmy Deloach Parkway extension proposes to be a limited access facility with a 24-foot raised median with ramp termini at the intersection of SR 307 and is in the concept phase. The recommendation for narrowing the lane widths from 12-feet to 11-feet requires a design variance. AASHTO 2004 for urban collectors states, "In industrial areas, lanes should be 12-feet wide" and "turning lanes at intersections should range from 10 to 12-feet depending on the percentage of trucks." (Page 433). This project is in a heavy industrial area with a truck percentage of 62%. Changes to the typical section will incur significant redesign costs and will delay the project schedule.

MLP00-0307-00(008), Chatham County  
P. I. No.: 562165  
VE Study Implementation  
Page 3.

The Office of Engineering Services concurs with the Project Manager's responses.

Approved:  Date: 5/6/09  
Gerald M. Ross, P. E., Chief Engineer

REW/DMF

Attachments


c: Genetha Rice-Singleton  
Ben Buchan  
Darrell Richardson  
Butch Welch  
Paul Liles  
Bill Ingalsbe  
Bill DuVall  
Will Murphy  
Ken Werho  
Lisa Myers  
Douglas Fadool  
General Files

VE Team: Chuck Hasty  
Jeremy Busby  
Clay Bastian  
Cynthia Burney  
Doug Franks

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

---

**INTERDEPARTMENTAL CORRESPONDENCE**

<b>FILE</b>	MLP00-0307-00(008), Chatham County SR307/Dean Forest Road From Robert B. Miller Rd to SR 21 P. I. No. 562165	<b>OFFICE</b>	Urban Design
		<b>DATE</b>	April 22, 2009
<b>FROM</b>	James B. Buchan, P.E., State Urban Design Engineer 		
<b>TO</b>	Ron Wishon, State Project Review Engineer Attention: Lisa Myers		
<b>SUBJECT</b>	<b>Value Engineering Study - Responses</b>		

Reference is made to the recommendations that were contained in the Value Engineering Study – Final Report dated March 11, 2009 for the above referenced project. Responses and recommendations are as follows:

**1. Value Engineering Alternative C-3: Use only Asphaltic Concrete Pavement (ACP) instead of the combination of ACP, Portland Cement Concrete (PCC) and High Early Strength (HES) Concrete Pavement - *Not Recommended***

This alternative is not recommended for implementation due to the following reasons:

- The twenty-four hour truck percentage for this project is 62%. This high truck percentage causes a higher predicted design period load, which requires a stronger pavement design to support it.
- The ACP pavement design proposed by the VE team meets design criteria, however it will require more maintenance over time (see attached 30-year Life Cycle Cost Analysis). PCC's life cycle cost is \$34,000 while ACP's is \$624,000. This difference results in a total savings of \$1,053,000 for construction and maintenance by using PCC over the 30 year period.

**2. Value Engineering Alternative G-1: It is recommended that sidewalk is not constructed along the corridor, but only at the intersections with Commerce/Export Blvd and SR21, to provide for ramps – *Recommended***

This alternative is recommended for implementation due to the following reasons:

- No sidewalks currently exist along any section of SR307.

- This project is an industrial/ commercial area with very little pedestrian traffic as noted by the lack of pathways along the roadway shoulder. The closest residential area is ½ mile south of the SR307/ SR21 intersection at Doyle Street.

### 3. Value Engineering Alternative K-1: Flush Median – *Not Recommended*

This alternative is not recommended for implementation due to the following reasons:

- The VE Team proposes to replace the 20-ft raised median with a 14-ft flush median. GDOT's Design Manual specifies using a 20-ft raised median for base year Average Daily Traffic (ADT) over 18,000 and design year ADTs over 24,000. The project's base year (2010) ADT is 18,900 and design year (2030) ADT is 27,600. Thus the traffic volumes warrant the raised median. The twenty-four hour truck percentage for this project is 62%.
- Although the corridor does not currently have a raised median, the proposed typical section matches the proposed typical section of two nearby projects along SR307. P.I. No. 0000345, SR307 over the new Ports Authority Rail Line, located 0.34 mile to the east, proposes a 20-ft raised median and is currently in the final design stage. P.I. No. 0008690, Jimmy Deloach Pkwy extension, proposes to be a limited access facility with a 24-ft raised median with ramp termini at the intersection of SR307 and is currently in concept phase.
- The recommendation for narrowing the lane widths from 12-ft to 11-ft requires a design variance. The AASHTO Policy on Geometric Design of Highways and Streets (2004) for urban collectors states, "In industrial areas, lanes should be 12-ft wide" and "turning lanes at intersections should range from 10 to 12-ft depending on percentage of trucks." (Page 433). This project is in a heavy industrial area with a truck percentage of 62%.
- Changes to the typical section will incur significant redesign costs and will delay the project schedule.

JBB:ASW:amr

#### Attachments

Life Cycle Cost Analysis (LCCA)  
Cost Worksheet

Life Cycle Cost Analysis - Present Value Discount Factor: Single future Payment  
Future Cost Calculation

Project: 562165

Creative Idea No. C-3  
Discount Rate: 4%

Analysis Period: 30 years

Cost Component Activity	Years	PVF	Original Design / PCC Only		Alternate Design / ACP Only	
			Initial Cost	PV	Initial Cost	PV
Rehabilitation #1	10	0.6756			\$134,750.00	\$91,037.10
Rehabilitation #2	20	0.4564	\$73,857.00	\$33,708.33	\$1,077,440.00	\$491,743.62
Rehabilitation #3	30	0.3083			\$134,750.00	\$41,543.43
Salvage Value						
Total				\$33,708.33		\$624,324.14
Initial Pavement Cost for the PCC area (14,000 sy)				\$615,475.00		\$1,077,440.00
Total Pavement Cost for the PCC area (14,000 sy)				\$649,183.33		\$1,701,764.14
Total Savings in 30 years						\$1,052,580.81

Cost Component Activity	Original Design / PCC Only	Alternate Design / ACP Only
Rehabilitation #1	N/A	Replace 12.5mm only, overlay
Rehabilitation #2	Assumed 12% of construction for repair	Replace 12.5mm, 19mm, 25mm, GAB, and add tack
Rehabilitation #3	N/A	Replace 12.5mm only, overlay

COST WORKSHEET								
CONSTRUCTION ELEMENT			ORIGINAL ESTIMATE			NEW ESTIMATE		
Item	Unit	No. Units	Cost/Unit	Total Cost	No. Units	Cost/Unit	Total Cost	
310-5080 8" GAB	SY	14000	18.5	259,000.00				
310-5120 12" GAB	SY				14000	21	294,000.00	
400-3605 19mm Superpave	TN				1540	90	138,600.00	
402-3121 25mm Superpave	TN				6930	73	505,890.00	
402-4510 12.5mm Superpave	TN				1540	87.5	134,750.00	
413-1000 Tack	GAL				2100	2	4,200.00	
430-0620 HES Conc. 12"	SY	3400	80	272,000.00				
439-0026 PCC Conc. 12"	SY	1090	77.5	84,475.00				
TOTAL				615,475.00			1,077,440.00	

# PRECONSTRUCTION STATUS REPORT FOR PI:562165-

SR 307/DEAN FOREST ROAD FMI R.B. MILLER RD TO SR 21

**ROJ ID :** 562165-  
**COUNTY :** Chatham  
**ENGTH (MI) :** 1.11  
**ROI NO. :** MI P00 0307-00(008)  
**ROI MGR :** Welch, Albert  
**OFFICE :** Urban Design  
**CONSULTANT :** No Consultant, GDOT In-House Design  
**POSSOR :** GDOT  
**DESIGN FIRM :** GDOT Urban Design Office

**MGMT LET DATE :** 09/18/2009  
**MGMT ROW DATE :**  
**SCHED LET DATE :** 7/7/2009  
**WHO LETS? :** Prepare Plans for Shelf  
**LET WITH :**

**DOT DIST :** 5  
**CONG. DIST :** 12  
**BIKE :** N  
**MEASURE :** E  
**NEEDS SCORE :** 13  
**BRIDGE SUFF :**

**MPO :** Savannah TMA  
**TIP # :** 99-H-04  
**MODEL YR :** Widening  
**TYPE WORK :** ADD 4U(MED 20)  
**CONCEPT :** Reconstruction/Rehabilitation  
**PROG TYPE :** N  
**Prov. for ITS :**  
**BOND PROJ :**

PROGRAMMED FUNDS				SUMP AMOUNTS	
Phase	Approved	Proposed	Cost	Fund	Date Auth
ROW	2004	2004	1,357,000.00	42220	11/6/2003
CST	2009	2018	17,118,053.63	MLP	PRECST
ROW Cost Est Amt	Date: 7/7/2005		Cost	Fund	
CST Cost Est Amt	Date: 3/26/2008		5,263,000.00	MLP	

## District Comments

TIA 3-30-05/Utilities office needs 2nd submission plans, ROW revision needed, need FEPR August 06/1-23-06/need revised drainage plans 2-13-06/working on final plans 11-15-06/no grade separation at RR included in project; project certified 4/25/08/4-20-09/Detour P1011 scheduled for May 14th

3 at-grade Xings 9/30/03, State Funds, 10/5/04, "Gap" project, Gct ready for shelf 1/11/05.

CUVERT - EJC 403/02/09 (FINAL PLANS SENT 02/09/09)

UD-1 Hoening Detour Route meeting scheduled for May 14/can

Type BIA/413-21-07/Reeval/413-6-08 On Sched/Sept 19/etL B4.3.09

REQ CHATHAM DO UTILITIES 7-21-02/RESCISSON LETTER SENT TO CHATHAM 7-22-05.

CHATHAM CO. SPONSOR REQUEST TO GDOT, 1997, CAPACITY & SAFETY

New cost est on 10/04 removed \$180,400 and put on 0007086

1625 11-03

Pre-Acq C: Ronnie Lewis, Coord. K. Hall, Appeal-Lewis

CSX reviewing plans; Condemned offline three vac parcels

>PA/TF folios shmid 4-08 +

One UST not being acquired

2nd sub plans to dgn 7 of 7, 3/3/2008

RECST/RHAB (WIDENING)

DEEDS CT: 19

**rel. Parcel CT :** 24  
**Under Review :** 0  
**Released :** 24

**Total Parcel in ROW System :** 24  
**Options - Pending :** 0  
**Condemnations- Pending :** 0

**Cond. Filled :** 5  
**Relocations :** 0  
**Acquired :** 24

**Acquired by :** DOT  
**Acquisition MGR :** O'Quinn, Andy  
**RAY Cert Date :** 5/7/08

